



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

Date: November 4, 2004

Subject: Supplemental Investigation Work Plan  
Downers Grove Sanitary District  
Downers Grove, IL  
Dated 8/11/2003



From: Bob Kay, Geologist  
Remedial Response Section 4

To: Ross del Rosario  
Remedial Project Manager

Ross:

I was working on some of our data collected in October at the Ellsworth Site and can across the subject Work Plan. Based on this information, I have a few comments on the hydrogeologic conditions in the DGSD area that may be worth considering.

1. Section 2.1—many wells show large changes in water levels between measurements (ex. BD-4I, DG-2I), which do not appear to be logical when compared to changes in most of the other wells. These changes are dramatic enough to impact interpretations of flow direction (from east-west to north south) with no obvious hydraulic reason for the changes. Our readings from October 2004 are similar to those of the June 2003 readings, but show flow components to the southwest, rather than the southeast. Essentially we have four different sets of readings, and four (at least somewhat) different flow directions based on those readings. Can the raw data be examined for possible errors? Can this variability be attributed to recharge from the sludge lagoons or the drying beds to the north? St. Joseph Creek? Failure of the well to be in hydraulic equilibrium either due to long term or short term phenomena? As the direction of flow is an important consideration for potential contaminant source areas I would suggest that this characterization needs to be improved by collection of data on a more frequent (monthly?) basis and the collection of surface-water-level data from the creek and the lagoon to indicate potential sources of variability. Most (if not all) of the potentiometric surfaces generated by Huff and Huff indicate it is hydraulically plausible for the sanitary district to be a source of contamination at wells BD-4I and BD-3I, with Dyna-Gear being a plausible to unlikely source depending on the measurement period.

Based on your and Bill Ryan's previous experiences with these wells I would recommend that some period of time (say 60 minutes) be allowed to pass between the time the wells are opened

and a water-level measurement is taken to allow water levels to reach hydraulic equilibrium. At the least, the next time these wells are measured, water levels should be taken every 5-10 minutes after the wells are opened to ensure that the water levels are stable. This information can be used to determine the stabilization time required for subsequent measurements.

2. Section 2.2—as Huff & Huff imply, given the fact that well DG-1I apparently is not screened at the top of the bedrock, and may or may not monitor the same hydrologic stratum as the other wells that are plotted in figure A-1, A-2, and A-3, it may not be valid to include this well in the contouring. Water-level data from well DG-1D is similar to DF-1I, so it's probably not a big deal as a practical matter, but given what we now know about the depth of the bedrock in this area (we didn't know it prior to installation of DG-1D) it's technically incorrect to draw contours based on this well.

Why blind drill the first 20 feet of the wells? The geology in this interval may impact flow and transport and should have been logged.

Based on our water levels from well DG-6I and DG-5I it appears that these wells may complicate, rather than simplify, interpretations on flow directions. The current water-level data indicates that water levels appear to be influenced by depth of the well and that contouring this data is somewhat suspect.

3. Section 2.4—add dissolved oxygen, turbidity, and oxidation-reduction potential to the list of field parameters if future sampling is performed.

4. Section 2.5—again, add dissolved oxygen, turbidity, and oxidation-reduction potential to the list of field parameters and set stabilization criteria for them if future sampling is performed.

**DO NOT PURGE OR SAMPLE USING BAILERS.** Bailers can bias the results of VOC samples low. If samples are collected in the future, purge and sample using a submersible pump. Consider use of the micropurge technique for purging and sampling.

If you have any questions or comments feel free to call me at 6-7938.

cc. S. Padavoni